

CAUSES OF POLICE BEHAVIOR REVISITED

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ABSTRACT

In 1980, Lawrence Sherman reviewed two decades of quantitative research examining the causes of police behavior in the United States. That review provided a synopsis of the factors known to influence service, detection, arrest, and force behavior. Since Sherman's summary of findings, scholarly interest regarding the causes of police behavior has increased significantly. Moreover, more sophisticated modes of analysis have been utilized, producing a large body of findings on how individual, situational, organizational, and community-level variables influence police behavior. This article reviews quantitative research from the 1980s and compares and contrasts these recent findings with those cited in the Sherman article. The findings indicate that although our understanding of the causes of police behavior has become more refined, a number of questions remain unanswered. The article highlights the gaps in the findings and suggests what issues need to be addressed in future research.

INTRODUCTION

In 1980, Lawrence Sherman reviewed and codified the published quantitative research examining the causes of police behavior in the United States. This involved summarizing findings dispersed across a variety of disciplines and levels of analysis in one classificatory framework. The review contributed significantly to policing literature in three

ways: first, it highlighted the salient variables that had generated interest among scholars; second, it summarized how these variables influenced police behavior; and third, it shaped police research agendas by illustrating gaps existing in the literature.

Since Sherman's (1980) review, a considerable amount of research has examined police behavior using increasingly sophisticated quantitative methodologies. This research has

filled many of the gaps cited by Sherman; however, it also has indicated that the relationship between many independent variables and police behavior is much more complex than prior research suggested. The volume of quantitative police research conducted during the 1980s, coupled with use of more sophisticated methodologies, calls for an updated review of research on the causes of police behavior. The present review of policing research from the 1980s examines five issues: 1) whether findings cited by Sherman have been supported by research in the 1980s; 2) whether research from the 1980s has clarified findings cited by Sherman;¹ 3) whether results cited by Sherman have been contradicted; 4) what issues or gaps remain after twenty-five years of quantitative research; and 5) what new findings were generated in the 1980s that were not considered in the policing research cited by Sherman.

The vast majority of quantitative research undertaken during the 1980s attempted to explain the same kinds of police behavior highlighted by Sherman (1980), namely: service (e.g., helping motorists, mediating disputes, conducting home security checks, etc.), detection (e.g., decisions to stop and question, investigative activities, etc.), arrest, and use of force (e.g., any physical or deadly force used against citizens). It should be noted that such a classificatory framework oversimplifies police-citizen interactions. It is often extremely difficult to establish where one type of police behavior ends and another begins. Thus, police behavior is not as clearly defined as these categories suggest (see Smith, 1987; Bayley and Garofalo, 1989).

The research examining each of these behaviors is discussed in terms of four levels of analysis (see Appendix). These levels are: individual, situational, organizational, and community.² Individual-level explanations focus on the relationship between officer characteristics (e.g., gender, age, race, years of service, etc.) and police behavior. Situational explanations focus on how incident-specific characteristics (e.g., suspect or complainant characteristics, method of police mobilization, seriousness of offense, etc.) influence the police response. Organizational-level variables refer to differences across and

within police subunits. Examples of these are styles of policing and patrol enforcement strategies. Finally, community-level explanations focus on how variables such as community demographic composition, economic indicators, and polity influence police behavior.

Although this article uses the classificatory framework developed by Sherman, the presentation of the findings differs. Sherman presented his findings in terms of the independent variables and noted their effects on each of the four police behavior variables. The presentation in this article revolves around the dependent variables. For example, police use of force is discussed in terms of which independent variables have been studied in relation to use of force. This may be a more logical presentation of the findings since most research has focused solely on a single category of police behavior rather than examining the effects of an independent variable across the different categories of police behavior.

In the review of quantitative literature on police behavior from the 1980s, a computer and manual reference search of all criminal justice/social science indexes was conducted. Over 330 scholarly articles were examined; of those 70 fell into the categories of police behavior mentioned above. Sherman's discussion was based on a total of 62 studies.³

Table 1 shows the total numbers of studies and findings, for each of the categories of independent variables by the police behaviors of concern, for both research time frames. It is interesting to note that although the total number of studies increased minimally during the 1980s, the total number of findings increased substantially.⁴ This suggests that police behavior was analyzed in greater depth with much richer results. For example, research from the 1980s has examined police behavior across levels of analysis (e.g., it has examined the effects of situational factors while controlling for organizational and community factors), has tested for interaction effects, and has examined relationships across department types (urban versus rural).

Several caveats concerning the focus of this

TABLE 1

TOTAL NUMBER OF FINDINGS AND STUDIES UNDER EACH OF THE INDEPENDENT CATEGORIES OF VARIABLES BY TYPE OF POLICE BEHAVIOR

Variable Category	Service		Detection		Arrest		Force	
	pre-1980	post-1980	pre-1980	post-1980	pre-1980	post-1980	pre-1980	post-1980
Individual-level	17	5	10	20	13	33	9	(Deadly force = 14) 22 (Physical force = 8) (Deadly force = 27)
Situational	17	17	21	22	51	225	16	48 (Physical force = 21) (Deadly force = 10)
Organizational-level	8	7	8	7	22	34	5	13 (Physical force = 3) (Deadly force = 9)
Community-level	0	7	1	12	18	58	5	14 (Physical force = 5) (Deadly force = 60)
Total number of findings	42	36	40	61	104	350	35	97 (Physical force = 37) (Deadly force = 17)
Total number of studies	10	6	16	12	30	38	18	22 (Physical force = 5)

article should be noted. First, the article compares quantitative research findings from the 1980s to those examined by Sherman *in an effort to establish where police behavior research stands empirically. This article does not assess theoretical development, rather, it sets the stage for such endeavors.* Second, this article is not a critical analysis of the conceptual and methodological quality of the research examined. The research discussed herein varies significantly in terms of methodological sophistication, type of data analyzed, and the number and type of independent variables considered. In an effort to be as objective as possible, the findings of all the police behavior studies examined were presented regardless of their quality. Finally, this article is not a comprehensive review of policing research as a whole. It focuses solely on quantitative research explicitly examining factors that influence police behavior. Therefore, some important areas (e.g., police response to domestic violence, community and problem-oriented policing, and research examining the spatial distribution of calls for service) were excluded when the studies did not assess the causes of police behavior directly. For example, the study by Sherman and Berk (1984) on domestic violence measured the deterrent effect of police response to domestic violence, an outcome, not a cause, of police behavior. Moreover, the police behavior was dictated by the research design,

not by factors that normally would affect domestic dispute outcomes.

SERVICE

During the 1980s, little quantitative research involved police service behavior. Compared to research in the period prior to 1980, there was a decrease in the total number of studies and findings on police service behavior (see Table 1). This is surprising since past research indicated that a major proportion of police work is service-oriented (Reiss, 1971), and current policing strategies (e.g., community-oriented policing) stress the importance of service behavior in modern policing practices. The lack of studies in the 1980s may be related to the difficulty researchers have had in distinguishing non-crime from crime-related police work (Mastrofski, 1983a:36–44). This, coupled with the fact that both crime-related and noncrime behavior take place within a single police-citizen encounter, makes it difficult for researchers to examine activities that are unambiguously service behavior. Table 2 summarizes the research findings regarding police service.⁵

Individual-Level Variables

The amount of research that stresses individual officer characteristics has decreased.

TABLE 2
SERVICE BEHAVIOR FINDINGS

Variables	Pre-1980		Post-1980			
	Relationship	Number of Findings	Breakdown of relationships			Number of Findings
			Relationship	Positive or Negative	No Relationship	
Individual-level (of officer)						
Gender	b	3	—	—	—	—
Race	c	2	—	—	—	—
Height	b	5	—	—	—	—
Age	a	1	—	—	—	—
Marital status	—	—	—	—	—	—
Education	a	2	—	—	—	—
Length of service	c	2	—	—	—	—
Attitudes	b	2	b	0	5	5
Total findings		17		0	5	5
Situational						
Police entry						
Pro/reactive	a	1	—	—	—	—
Response time	—	—	—	—	—	—
Number of officers	a	1	—	—	—	—
Suspect						
Gender	a	1	c	2	1	3
Race	c	2	a	2	0	2
Age	a	2	—	—	—	—
Class	a	1	—	—	—	—
Demeanor	a	2	c	2	0	2
Victim-offender relationship	a	1	—	—	—	—
History	—	—	c	1	1	2
Complainant						
Gender	—	—	—	—	—	—
Race	—	—	—	—	—	—
Age	—	—	a	1	0	1
Class	—	—	—	—	—	—
Demeanor	a	1	—	—	—	—
Preference	—	—	a	1	0	1
Visibility						
Public/private	a	1	a	2	0	2
Number of spectators	a	1	—	—	—	—
Other ^a	—	—	a	2	0	2
Seriousness						
Felony/misdemeanor	a	1	—	—	—	—
Injury	—	—	—	—	—	—
Weapon	—	—	a	2	0	2
Legal						
Miranda	—	—	—	—	—	—
Evidence	b	1	—	—	—	—
Decriminalization	b	1	—	—	—	—
Total findings		17		15	2	17
Organizational-level						
Intraorganizational						
Patrol strategy	c	8	a	7	0	7
Enforcement strategy	—	—	—	—	—	—
Division of labor	—	—	—	—	—	—
Supervision	—	—	—	—	—	—
Interorganizational						
Department size	—	—	—	—	—	—
Professionalism	—	—	—	—	—	—
Bureaucratization	—	—	—	—	—	—
Professionalism and bureaucratization	—	—	—	—	—	—
Discretionary time	—	—	—	—	—	—
Total findings		8		7	0	7

TABLE 2 Continued
SERVICE BEHAVIOR FINDINGS

Variables	Pre-1980		Post-1980			
	Relationship	Number of Findings	Breakdown of relationships			Number of Findings
			Relationship	Positive or Negative	No Relationship	
Community-level						
Polity	—	—	—	—	—	—
Statute change	—	—	—	—	—	—
Economy	—	—	c	2	0	2
Crime rate	—	—	b	0	1	1
Demographic						
Percent nonwhite	—	—	—	—	—	—
Stability	—	—	—	—	—	—
Percent over 65	—	—	b	0	1	1
Heterogeneity	—	—	a	1	0	1
Percent single parent	—	—	a	1	0	1
Transient population	—	—	—	—	—	—
Other ^b	—	—	a	1	0	1
Total findings		0		5	2	7

KEY a = relationship b = no relationship c = mixed findings d = possibly spurious relationship — = no research

^aCharacteristics of the interaction (Bayley, 1986:341).

^bSize of the community (Breci and Simons, 1987:98).

This is unfortunate because the effects of variables considered salient in the past (e.g., officer race and length of service) went unexamined in the 1980s (see Sherman, 1980:73–75). A single study examining one officer characteristic accounts for all of the individual-level findings on service behavior. An analysis of five officer attitudes⁶ using the Police Service Study data (hereafter PSS) indicated that attitudes have no explanatory capacity in discriminating among informal dispositions by police officers (Worden, 1989:694). This research supports similar findings cited by Sherman (1980:76).

Situational Variables

The influence of a number of situational variables was examined in the 1980s. Many of the findings indicated relationships between situational variables and police service behavior. The complex nature of decisions made by police officers has been illustrated by new research examining the tactics chosen by police officers at three stages of an encounter: contact, processing, and exit (Bayley, 1986). The research has shown that each

stage produces separate requirements for police officers and that previous decisions made by police officers affect subsequent ones (1986:347). For example, when officers feel there is little they can do during the processing stage of an encounter, they are more likely to refer disputants to a third party when exiting (1986:342). Or, when officers cannot accommodate a complainant's preference at processing, they give advice to the complainant showing their concern at exit (1986:346).

Other new findings suggest that seriousness of the offense (measured by use of a weapon) decreases the probability of mediation or separation (Smith, 1987:776). An examination of the PSS data comparing arrest behavior to separation and mediation (service behaviors) has indicated that conflicts in public are more likely to be handled by separation while conflicts in private locations are likely to be handled by mediation (Smith, 1987:778). If one views separation as a more formal means of conflict resolution than mediation, these findings support the research cited by Sherman (1980:84–85) indicating that police are more likely to behave harshly in public places.

Sherman cited contradictory findings concerning the relationship between suspect race and service behavior. Black suspects were treated more severely by police in one study but not in another (1980:81). Later research supported the latter, indicating that police are most likely to handle interpersonal violence between nonwhites by separating or mediating rather than arresting the combatants (Smith, 1987:776).

Gender, demeanor, and prior police involvement in a situation affect measures of service behavior in different way, which has resulted in a number of mixed findings. For example, Smith (1987:776) found that the police are equally likely to mediate interpersonal conflicts involving two males as those involving a male and a female. However, in comparisons of the service behavior of separation to arrest behavior, the data indicate that violence between two males is more likely to result in arrest, whereas violence between a male and a female is more likely to result in separation. Also, the likelihood of mediation is reduced and separation is more likely if the disputants have been drinking (a demeanor indicator). Interestingly, while the likelihood of mediation is significantly reduced if the police have had prior involvement with the disputants (1987:778), separation is equally likely in initial and repeat encounters.

Organizational-Level Variables

The influence of organizational-level variables on police service behavior has largely gone unexamined. Patrol strategy is the only organizational factor that has generated quantitative research during the last twenty-five years. A study examining the size of primary assignment areas (PAA)⁷ found that decreases in PAA size increase the likelihood that victims will be comforted and that officers will be acquainted with at least one of the citizens in a police-citizen encounter (Mastrofski, 1981:352). Furthermore, reductions in PAA size were correlated with increases in service style behavior and increases in the likelihood that police would

conduct home security checks in low-violence neighborhoods (1981:353).

Community-Level Variables

Research examining the effects of community-level variables on police service behavior was not conducted prior to 1980. The influence of such variables has since been examined in two studies utilizing the PSS data (Smith, 1986; 1987). The first, using police-initiated assistance as an indicator of service behavior, found that police provide somewhat more assistance in racially heterogeneous neighborhoods and in neighborhoods with a larger proportion of single parent households and less assisting behavior in higher-status neighborhoods (Smith, 1986:327). Smith's other study indicated that the neighborhood crime rate had no significant effect on separation (Smith, 1987:776) and that the likelihood of mediation during domestic disturbances declined as neighborhood economic status declined (1987:780). However, Smith (1986:327; 1987:780) noted that community characteristics do not appear to explain much of the variance in service behavior across neighborhoods.

DETECTION

Although the total number of studies examining detection behavior decreased in the 1980s, studies in that decade produced more findings than those cited by Sherman (1980). Investigation, decisions to stop, and reporting behavior were the focus of that research. Table 3 summarizes the findings.

Individual-Level Variables

The number of findings pertaining to the effects of individual officer characteristics on police detection behavior doubled during the 1980s, but the research has generated more questions than answers. Specifically, the effects of officer gender, length of service, and attitudes remain unresolved. Some research cited by Sherman (1980:73-74) indicated that

TABLE 3
DETECTION BEHAVIOR FINDINGS

Variables	Pre-1980		Post-1980			
	Relationship	Number of Findings	Relationship	Breakdown of Relationships		Number of Findings
				Positive or Negative	No Relationship	
Individual-level (of officer)						
Gender	c	3	c	1	3	4
Race	a	1	b	0	1	1
Height	—	—	—	—	—	—
Age	b	1	b	0	1	1
Marital status	—	—	c	2	0	2
Education	a	1	a	2	0	2
Length of service	a	2	c	3	4	7
Attitudes	c	2	c	3	4	7
Total findings		10		11	13	24
Situational						
Police entry						
Pro/reactive						
Response time	b	1	a	4	0	4
Number of officers	a	1	—	—	—	—
Suspect						
Gender	a	1	—	—	—	—
Race	a	4	c	1	1	2
Age	a	1	—	—	—	—
Class	c	2	b	0	1	1
Demeanor	—	—	—	—	—	—
Victim-offender relationship	a	2	—	—	—	—
History	—	—	—	—	—	—
Complainant						
Gender	—	—	a	1	0	1
Race	c	2	c	1	4	5
Age	—	—	—	—	—	—
Class	a	1	—	—	—	—
Demeanor	a	2	b	0	1	1
Preference	a	2	a	1	0	1
Visibility						
Public/private	b	1	—	—	—	—
Number of spectators	—	—	—	—	—	—
Seriousness						
Felony/misdemeanor	a	1	a	6	0	6
Injury	—	—	—	—	—	—
Weapon	—	—	—	—	—	—
Legal						
Miranda	—	—	—	—	—	—
Evidence	—	—	b	0	1	1
Decriminalization	—	—	—	—	—	—
Total findings		21		14	8	22
Organizational-level						
Intraorganizational						
Patrol strategy	c	6	—	—	—	—
Enforcement strategy	—	—	—	—	—	—
Division of labor	a	1	—	—	—	—
Supervision	—	—	c	1	2	3
Other ^a	—	—	a	3	0	3
Interorganizational						
Department size	—	—	a	2	0	2
Professionalism	a	1	—	—	—	—
Bureaucratization	—	—	—	—	—	—
Professionalism and bureaucratization	—	—	—	—	—	—
Discretionary time	—	—	a	1	0	1
Total findings		8		7	2	9

TABLE 3 Continued
DETECTION BEHAVIOR FINDINGS

Variables	Pre-1980		Post-1980			
	Relationship	Number of Findings	Breakdown of Relationships			Number of Findings
			Relationship	Positive or Negative	No Relationship	
Community-level						
Polity	a	1	—	—	—	—
Statute change	—	—	—	—	—	—
Economy	—	—	a	1	0	1
Crime rate	—	—	a	2	0	2
Demographic						
Percent nonwhite	—	—	—	—	—	—
Stability	—	—	a	2	0	2
Percent over 65	—	—	a	2	0	2
Heterogeneity	—	—	a	1	0	1
Percent single parent	—	—	a	1	0	1
Transient population	—	—	—	—	—	—
Other ^b	—	—	b	0	1	1
Other ^c	—	—	a	1	0	1
Other ^d	—	—	a	1	0	1
Total findings		1		11	1	12

KEY a = relationship b = no relationship c = mixed findings d = possibly spurious relationship — = no research

^aThese other factors examined include educational programs (Berk et al., 1980:211) and other officer training programs (Breci and Simons, 1987:102).

^bHomant and Kennedy (1985:38) compared police behavior in urban areas and rural communities.

^cWorden (1989:691) examined the effects of increased traffic patterns.

^dSmith (1986:329) examined the effects of social mobility.

female officers initiated fewer citizen encounters than their male counterparts, while other research suggested no difference. Two studies conducted in the 1980s support the latter finding (Snortum and Beyers, 1983:40; Worden, 1989:693). The effect remains unclear since another study found that female officers were *more* likely to get involved in domestic violence disturbances (Homant and Kennedy, 1985:40).

The research reported by Sherman (1980:73) indicated that less experienced officers do more to detect crime. Some research from the 1980s has suggested that length of service has no effect on officer detection activities (Homant and Kennedy, 1985:38; Meyers et al., 1987:365). However, the effect of this variable remains unresolved because Worden's (1989:692–93) analysis of the PSS data did find that more experienced officers made fewer traffic and suspicion stops, and analysis of survey data has indicated that length of service does increase the likelihood that

officers would stop juvenile suspects (Meyers et al., 1989:182). Finally, officer responses to vignettes suggest that length of service increases the likelihood that police will report certain instances of child neglect (Willis and Wells, 1988:706).

The influence of officer attitudes remains in question. Findings from the 1980s have indicated that attitudes have some influence on police proactivity in traffic enforcement and suspicion stops (Worden, 1989:691,693). Officers who feel strongly about citizen respect or legal institutions are more proactive in traffic enforcement (1989:691), and officers with legalistic role orientations make more suspicion stops (1989:693). It should be noted that although the effects of these attitudes achieved statistical significance, their overall influence was extremely small (1989:693).

Findings from research in the 1980s regarding the influence of officer age and education have supported those cited by Sherman (1980:71,75). Officer age was found to

have no effect on patrol activities (Homant and Kennedy, 1985:38), and officer education was positively correlated with detection activities (Homant and Kennedy, 1985:35; Breci and Simons, 1987:100).

The effect of officer race is the sole area in which research from the 1980s contradicted the findings of studies conducted previously. Research cited by Sherman (1980:75) indicated that officer race influenced detection behavior, but survey research from the 1980s found that officer race exerted no influence on officer involvement in the handling of domestic disturbances (Homant and Kennedy, 1985:38).

Situational Variables

The influence of situational variables on detection behavior was examined extensively in the 1980s. Unfortunately, the influence of many of these variables remains unresolved. Two areas in which the relationship remains unclear are the effects of suspect race and the effects of complainant race. Utilizing multivariate analysis, Homant and Kennedy (1985:38) found that the race of partners in domestic disturbances had no statistically significant influence on police behavior in those disturbances, while Willis and Wells (1988:711) found that white families were more likely to be reported for child sexual and physical abuse than were blacks. Both of these findings contradict the argument that blacks are treated more harshly than whites in the context of police detection activities (Sherman, 1980:79–80). Furthermore, the majority of findings in the 1980s indicated that a complainant's race had no effect on detection activities (Homant and Kennedy, 1985:38; Stenross, 1984:399; Smith, 1986:329). However, one study reported a conditional effect in which the victim's race interacted with the racial composition of the neighborhood. That is, police were much less likely to file reports of incidents involving black victims in racially homogeneous neighborhoods, but they extended the law equally to black victims in heterogeneous neighborhoods (Smith, 1986:337).

Research in the 1980s clarified the relationship between suspect class and police detection behavior. While Sherman cited mixed findings (1980:84), survey research from the 1980s indicated that the social class of suspects has no influence on the willingness of police to report child abuse (Willis and Wells, 1988:711).

A few studies have contradicted the results cited by Sherman. In regard to police entry, Sherman cited evidence that response time is unrelated to finding witnesses at the scene (1980:77). Bivariate results from the 1980s indicate that shorter police response time is associated with higher probabilities of witness availability, suspect identification, suspect vehicle identification, and physical evidence availability (Cordner et al., 1983:157). Sherman also cited research which showed that police were less likely to fill out crime reports when the complainant was antagonistic (1980:84); analysis of the PSS data has indicated that the demeanor of the complainant has no effect on the police decision to file a report (Smith, 1986:332).

Findings from the 1980s on the situational variables of complainant preference and seriousness of the offense have supported the findings reported by Sherman (1980:84, 91). This research has indicated that police are more likely to file a report if the complainant requests that they do so (Smith, 1986:332) or when the offense investigated is more serious (Smith, 1986:332; Stenross, 1984:398–400; Willis and Wells, 1988:710). Two new findings were produced by research in the 1980s. First, police officers were found to be significantly less likely to file a report when an incident involved a female complainant (Smith, 1986:332), and second, the presence of leads was found to have no effect on an officer's decision to call in an evidence technician (Stenross, 1984:399).

Organizational-Level Variables

Although the overall amount of research examining organizational factors is not large, findings from the 1980s have shown the influence of such variables on police detection

activities. Observational studies (Mastrofski et al., 1987:392) and survey research (Meyers et al., 1987:365) have indicated that smaller departments initiate more traffic stops per shift, and another study found that the number of proactive suspicion stops increased as the amount of discretionary time an officer had increased (Worden, 1989:691). Other research indicated that officer training affects reporting and quality of reports by police officers (Berk et al., 1980:211; Breci and Simons, 1987:102).

The influence of a few organizational factors remains unresolved. Depending on the way it has been operationalized,⁸ supervision strategy has had an insignificant or negative effect on officer-initiated encounters (Allen, 1982:104). Unfortunately, patrol strategy was not examined during the 1980s even though Sherman cited mixed results regarding its effects (Sherman, 1980:87).

Community-Level Variables

Most of what is known about the effects of community-level variables on detection behavior was discovered during the 1980s. These findings were produced by two studies using PSS data (Smith, 1986; Worden, 1989). The primary study is Smith's (1986) examination of the effects of community-level variables on police filing of official reports and police investigative behavior. The results indicated that police were more likely to file official reports in less stable communities (1986:329,332) and less likely to file victimization reports in high-crime neighborhoods (1986:332). Racial heterogeneity had the strongest influence on proactive police investigations (1986:325), and police were less likely to initiate proactive investigations in high-crime neighborhoods and in neighborhoods with a high percentage of single-person households (1986:327). Other research has found that proactive traffic stops are correlated with increased traffic in an officer's patrol area (Worden, 1989:691).

ARREST

Of the four categories of police behavior examined, arrest is the dependent variable

most frequently studied. Since the importance of individual liberty has been culturally and historically stressed in the United States, the research emphasis in this area is not surprising. Understanding what factors influence the decision to arrest can help ensure that such decisions are equitable and that individuals are not unjustly deprived of their liberty. Research in the 1980s produced a more refined understanding of police decisions to arrest by controlling across various levels of analysis—for example, examining the influences of individual-level variables while controlling for type of department. Table 4 presents the results.

Individual-Level Variables

Overall, individual officer characteristics appear to have little influence on arrest although the influence of many variables remains unresolved. For example, Sherman (1980:75–76) cited research indicating that better educated officers made more arrests, yet the findings from the 1980s are inconclusive. Two analyses of the PSS data (Smith and Klein, 1983:84–85; Worden, 1989:701) showed that an individual officer's level of education had no effect on arrest behavior. However, departments in which officers had higher levels of education (operationalized as an indicator of police professionalism) had lower arrest rates (Smith and Klein, 1983:84–85). Research by Sykes and Brent (1983:217,221) further complicated the issue by indicating that higher median levels of officer education led to increases or decreases in the severity of police sanctions depending on differences in situational factors.⁹

Sherman (1980:73) cited research indicating that less experienced officers made more arrests. Research from the 1980s produced mixed findings. Some studies showed that officer length of service increased the likelihood of arrest (Sykes and Brent, 1983:217; Meyers et al., 1989:182 for juvenile drunk driving suspects), some showed that length of service decreased the likelihood of arrest when measured at the department level (Smith and Klein, 1983:84), and some indicated that length of service had no effect on arrest when

TABLE 4
ARREST BEHAVIOR FINDINGS

Variables	Pre-1980		Post-1980			
	Relationship	Number of Findings	Relationship	Breakdown of Relationships		Number of Findings
				Positive or Negative	No Relationship	
Individual-level (of officer)						
Gender	c	5	b	0	1	1
Race	a	1	b	0	5	5
Height	b	1	—	—	—	—
Age	b	1	—	—	—	—
Marital status	—	—	a	1	0	1
Education	a	1	c	3	2	5
Length of service	a	2	c	2	5	7
Attitudes	a	2	c	7	13	20
Total findings		13		13	26	39
Situational						
Police entry						
Pro/reactive	a	2	c	5	2	7
Response time	c	2	c	1	1	2
Number of officers	a	2	—	—	—	—
Other ^a	—	—	c	10	1	11
Suspect						
Gender	a	2	c	5	21	26
Race	c	4	c	5	23	28
Age	a	2	c	4	12	16
Class	a	3	a	1	0	1
Demeanor	a	8	c	19	3	22
Victim-offender relationship	a	2	c	9	8	17
History	—	—	a	2	0	2
Complainant						
Gender	—	—	c	2	0	2
Race	—	—	a	1	0	1
Age	—	—	—	—	—	—
Class	—	—	a	1	0	1
Demeanor	—	—	—	—	—	—
Preference	a	4	c	25	10	35
Visibility						
Public/private	c	2	c	1	3	4
Number of spectators	a	1	c	2	1	3
Other ^b	—	—	a	2	0	2
Seriousness						
Felony/misdemeanor	a	10	c	21	6	27
Injury	—	—	c	2	5	7
Weapon	—	—	c	3	1	4
Legal						
Miranda	c	4	—	—	—	—
Evidence	c	3	c	8	1	9
Decriminalization	—	—	—	—	—	—
Total findings		51		129	98	227
Organizational-level						
Intraorganizational						
Patrol strategy	c	7	c	1	4	5
Enforcement strategy	—	—	c	3	2	5
Division of labor	c	7	b	0	1	1
Supervision	a	1	c	2	1	3
Interorganizational						
Department size	—	—	c	2	1	3
Professionalism	c	7	c	10	1	11
Bureaucratization	—	—	c	3	3	6
Professionalism and bureaucratization	—	—	a	2	0	2
Discretionary time	—	—	—	—	—	—
Total findings		22		23	13	36

TABLE 4
ARREST BEHAVIOR FINDINGS

Variables	Pre-1980		Post-1980			
	Relationship	Number of Findings	Relationship	Breakdown of Relationships		Number of Findings
				Positive or Negative	No Relationship	
Community-level						
Polity	c	5	c	9	6	15
Statute change	—	—	—	—	—	—
Economy	c	8	c	11	6	17
Crime rate	—	—	c	1	2	3
Demographic						
Percent nonwhite	a	2	c	1	2	3
Stability	a	2	—	—	—	—
Percent over 65	—	—	—	—	—	—
Heterogeneity	—	—	c	8	16	24
Percent single parent	—	—	—	—	—	—
Transient population	—	—	—	—	—	—
Other ^c	b	1	—	—	—	—
Total findings		18		30	32	62

KEY a = relationship b = no relationship c = mixed findings d = possibly spurious relationship — = no research

^aSupervisor present when police entered the situation (Smith and Klein, 1983; 1984; Smith, 1984).

^bLength of interaction (Sykes and Brent, 1983:217).

^cSherman cited research that examined the influence of 15–29-year-olds (1980:90).

measured at the individual level (Smith and Klein, 1983:84; Worden, 1989:701) or when the arrests involved adult drunk driving suspects (Meyers et al., 1989:182).

Sherman (1980:74–75, 76) cited research suggesting that officer race and attitudes influenced police arrest behavior. Research from the 1980s contradicted these findings. Analysis of the PSS data indicated that race of officer had no effect on police arrest behavior (Worden, 1989:701) and remained nonsignificant across department types, that is, legalistic, service, militaristic, or fraternal¹⁰ (Smith and Klein, 1983:87–89). Similarly, most research indicated that attitudes had no statistically significant effect on arrest decisions (Smith and Klein, 1983:88; Worden, 1989:687–702; Meyers et al., 1989:182; Stith, 1990:43)¹¹ although they may have affected arrest behavior indirectly by interacting with situational variables (Worden and Pollitz, 1984:118; Worden, 1989:700).

Research in the 1980s on the effects of officer gender has clarified previous research cited by Sherman. Sherman (1980:73–74) reported mixed findings, citing four studies that found female officers made fewer arrests than

male officers and one study that reported no difference. Research from the 1980s indicated that officer gender had no effect on arrest behavior (Worden, 1989:701).

Finally, Walsh (1986:278), examining a new topic, found that officers with high arrest rates were more likely to be married and their wives were less likely to be working. The author speculated that such officers may be making arrests to earn overtime pay.

Situational Variables

During the 1980s, quantitative analysis of arrest behavior in terms of the situational characteristics of the police-citizen interaction produced a large number of findings. The studies from the 1980s differ from previous work in an important respect that had an impact on the findings. Estimating a number of equations within a single study became quite routine during this decade. This led to numerous mixed findings within studies (see, e.g., Smith et al., 1984; Smith, 1984; Smith and Klein, 1983; 1984; Visser, 1983). Only one supported past research: results from both periods indicated that lower-class suspects

were more likely to be arrested (Sherman, 1980:83; Hollinger, 1984:181).

The influence of most situational characteristics on arrest behavior remains unresolved. For example, research cited by Sherman (1980:77) indicated that situations in which police proactively entered an encounter were more likely to result in arrest than those in which police entered reactively. No research from the 1980s directly addressed this issue, although the effect of police entry was examined in a variety of other ways. Both Berk and Loeske (1980–1981:340) and Berk and Newton (1985:258) found that police are less likely to arrest when the victim calls the police in domestic disturbances.¹² Another study, however, indicated no effect when the victim summons the police (Worden and Pollitz, 1984:111). Another aspect of police entry that has been examined is response time. Sherman (1980:77–79) cited research indicating that response time had no effect on arrest. Spelman and Brown (1981:74) found that response time did not affect response-related arrest because citizens waited too long before contacting the police after being victimized. Conversely, Cordner et al. (1983:152) found that shorter response times were associated with more on-scene arrests.

There have been mixed findings regarding suspect characteristics. For example, research prior to 1980 indicated that female suspects were less likely to be arrested than males (Sherman, 1980:82). Some research conducted during the 1980s supported these findings (Sykes and Brent, 1983:217; Krohn et al., 1983:424,426,428; Smith and Klein, 1984:474; Smith et al., 1984:244; Smith, 1986:330).¹³ However, a considerable amount of research from the 1980s indicated that gender was not an important predictor of arrest (Smith and Visser, 1981:174; Moyer, 1981:244; 1982:382; Visser, 1983:22; Smith et al., 1984:247; Willbanks, 1986:527,528; Steffensmeier and Allan, 1988:76), and it remained insignificant across department types, that is, fraternal, legalistic, service, and militaristic (Smith and Klein, 1983:89; Smith, 1984:28).

Suspect race remains one of the most frequently examined variables in policing research. The importance of suspect race is illustrated by the fact that during the 1980s there were at least 16 quantitative studies that attempted to test its influence on arrest behavior. Utilizing a variety of data sets and examining various offenses, most of these studies found that race had no effect on police arrest decisions. For example, utilizing the PSS observational data, researchers found no relationship between race and decisions to arrest when no complainant was present (Smith, 1986:330), when both complainant and suspect were present (Smith et al., 1984:246), in domestic disturbance encounters (Berk and Loeske, 1980–1981:340; Worden and Pollitz, 1984:110), or in interpersonal disputes (Smith and Klein, 1984:475); the results held regardless of whether departments were legalistic, service, militaristic, or fraternal (Smith and Klein, 1983:89; Smith, 1984:28). Analysis of other data sets indicated a similar lack of effect for drunk driving offenses (Hollinger, 1984:178) and for data collected from police responses to vignettes (Moyer, 1981:240; 1982:380).

A few studies, however, have found a relationship between race of suspect and the police decision to arrest. In analyzing encounters involving physical interpersonal violence, Smith (1987:776) found that police were more likely to use a “penal style” of control in situations in which both combatants were white than they were when both were nonwhite. This contradicts the research cited by Sherman (1980:80) indicating that police were more likely to arrest black suspects than white. Some recent research, however, has indicated that black suspects are more likely to be arrested (Smith and Visser, 1981:172; Visser, 1983:21; Smith et al., 1984:244). Visser (1983:21) found the relationship to be much stronger for females than males, while Smith et al. (1984:244) found suspects’ race influenced police arrest decisions for females only.

Some research from the 1980s has suggested that suspect age is not a significant predictor of police decisions to arrest (Smith and Visser, 1981:172; Visser, 1983:15; Smith,

1984:27; Smith et al., 1984:244). These results differ from those obtained in the previous decade, which indicated that young suspects were less likely to be arrested by the police (Sherman, 1980:82). However, other research from the 1980s indicated that age does influence arrest when the suspect is female (Visser, 1983:15), when misdemeanants are adults (Krohn et al., 1983:428), or when a department is legalistic (Smith and Klein, 1983:89; Smith, 1984:30).

Most research from the 1980s examining the influence of a suspect's demeanor on police arrest behavior supported previous conclusions (Sherman, 1980:81) that "uncooperative," "abusive," and "antagonistic" citizens were more likely to be arrested than those who were "calm," "cooperative," and "quiet" (Smith and Visser, 1981:172; Moyer, 1981:240; 1982:380; Visser, 1983:16; Smith and Klein, 1983:90; 1984:475; Smith et al., 1984:244; Worden and Pollitz, 1984:113; Smith, 1986:330; 1987:778; Worden, 1989:700). Furthermore, male suspects were found to be more likely to be arrested if they had been drinking (Berk and Loeske, 1980–1981:339; Smith and Klein, 1984:475; Worden and Pollitz, 1984:113). Interestingly, some research has suggested that antagonistic behavior and intoxication have little effect on the arrest decision (Waaland and Keeley, 1985:364) and no effect in militaristic departments (Smith, 1984:30); police also have been found by some research to be more likely to separate than arrest combatants in an interpersonal dispute when the combatants have been drinking (Smith, 1987:778).

Research cited by Sherman (1980:81) indicated that police were more likely to arrest when the victim-offender relationship was more distant. Similar research from the 1980s produced mixed results. For example, reanalysis of the PSS data indicated that one of the strongest predictors of arrest is the victim and suspect being strangers (Smith and Visser, 1981:173; Smith et al., 1984:244; Smith and Klein, 1983:90).¹⁴ Conversely, arrests in sexual assault cases have been found to be more likely for prior acquaintances than for strangers (Lafree, 1981:589). When gender was introduced into the equation, Visser (1983:18)

found that male suspects who knew their victims were less likely to be arrested, yet there was no effect when both victim and suspect were female. The victim-offender relationship also has been examined in terms of marital status. Research has indicated that marital status has no effect on police arrest behavior in domestic disturbances (Berk and Loeske, 1980–1981:341; Worden and Pollitz, 1984:113) and that cohabitating combatants are just as likely to be arrested as married combatants (Smith and Klein, 1984:475; Smith, 1987:774).

Consistent with the findings discussed by Sherman (1980:84), research from the 1980s indicated that complainant preference has a significant effect on arrest. These studies indicated that if the complainant or the victim requests an arrest, the probability of arrest increases substantially (Berk and Loeske, 1980–1981:338; Lafree, 1981:588; Smith and Visser, 1981:173; Visser, 1983:18; Smith and Klein, 1983:89; Worden and Pollitz, 1984:110; Smith, 1984:30; Smith and Klein, 1984:475; Smith et al., 1984:244; Smith, 1987:778; Worden, 1989:700; Kerstetter, 1990:289). Conversely, if the complainant or victim requests that the offender not be arrested, the probability of arrest decreases (Smith and Visser, 1981:173; Smith and Klein, 1983:89; Smith, 1984:30). Visser (1983:22) found that female victims' requests play a larger role in arrest decisions than do those of males. Other research has suggested that the relationship is not as simple as it first appeared. Smith (1984:29–30) found that police were likely to comply with complainants' leniency and arrest requests in legalistic departments but only with the arrest requests in service and fraternal departments and that complainant preference had no effect in militaristic departments. Still other research found that preference had no effect in militaristic, fraternal, or service departments but had a strong effect in legalistic departments (Smith and Klein, 1983:89). Further analysis of interaction terms indicated that police are more likely to adhere to a citizen's preference in lower-status (Smith and Klein, 1984:479) and homogeneous neighborhoods (Smith et al., 1984:246; Smith, 1986:334).

The influence of the visibility of an incident remains mixed. Some analyses of the PSS data indicated that visibility did not influence arrest decisions (Smith, 1987:778; Worden and Pollitz, 1984:109). Another analysis of the same data found that police arrested males more often when the incident took place in a commercial location and bystanders were present but that these factors did not affect arrests of females (Visser, 1983:18–19). A third study found that the presence of bystanders increased the likelihood of arrest regardless of suspect gender (Smith and Visser, 1981:172–73).

Sherman (1980:91) highlighted the need to use more sensitive measures when testing the effects of offense seriousness on arrest behavior. The researchers cited in Sherman's article and others who subsequently operationalized seriousness using a felony-misdemeanor dichotomy have found that police are more likely to arrest when the offense is a felony (Sherman, 1980:91; Smith and Visser, 1981:173). Results obtained with more specific measurements, such as scaled combinations of a variety of crimes, have suggested that the more serious a crime the more likely police are to arrest (Smith and Klein, 1983:87; Smith et al., 1984:244; Smith, 1984:27; 1986:330). The same result was obtained in analyses of an officer's behavior in hypothetical situations (Moyer, 1981:240; 1982:380).

During the 1980s, research examining the PSS data furthered understanding of the influence of offense seriousness by examining its effects across gender, age, and type of department. Visser (1983:19) found that suspicion of violent and property offenses increased the probability of arrest for males but that only suspicion of property offenses increased the probability of arrest for females. When examining the effects of age, Krohn et al. (1983:426–28) found that offense seriousness had a substantial effect on the disposition of both juvenile and adult misdemeanors but no effect on the disposition of juvenile or adult felonies. Smith and Klein (1983:87) found that offense seriousness had a positive effect on the probability of arrest

across all types of departments (i.e., fraternal, service, legalistic, and militaristic). However, Smith (1984:32) found that the commission of a violent offense increased the likelihood of arrest only in fraternal and legalistic agencies and that the commission of a property offense made arrest more likely in fraternal, service, and legalistic departments.

Other researchers have used different operationalizations of seriousness, such as injury/no injury or weapon/no weapon dichotomies. Most of this research showed that the presence of injuries was not a significant predictor of arrest (Berk and Loeske, 1980–1981:339; Smith and Klein, 1984:475; Worden and Pollitz, 1984:110; Bell, 1985:531; Smith, 1987:774). Only Worden (1989:700) and Kerstetter (1990:297) found that injuries influenced arrest. Examinations of weapon use produced contradictory results, some indicating that it increased the likelihood of arrest (Lafree, 1981:588; Smith, 1987:776; Kerstetter, 1990:288) and others showing no effect on the likelihood of arrest (Smith and Klein, 1984:475).

Studies from both eras reported mixed findings regarding the influence of evidence on arrest behavior. Analyses of sexual assault data during the 1980s indicated that the victim's ability to identify a suspect (Lafree, 1981:588–89; Kerstetter, 1990:284), the complainant's promptness in reporting, the availability of other witnesses, corroborating evidence, and the suspect appearing in a lineup (Kerstetter, 1990:284–94) increase the likelihood of arrest. Failure of the victim to report an offense promptly made arrest less likely (Lafree, 1981:588).

New situational variables were examined during the 1980s. For example, some research found that the presence of police supervisors increased the likelihood of arrest (Smith and Klein, 1983:91; Smith, 1984:31).¹⁵ However, the relationship was confounded by department type. When a supervisor was present, arrest was more likely in militaristic and legalistic departments (Smith and Klein, 1983:91; Smith, 1984:311) but less likely (Smith, 1984:31) or not likely (Smith and Klein, 1983:91) in fraternal departments, and there was little (Smith and Klein, 1983:91)

or no effect (Smith, 1984:31) in service departments. Other research examined the influence of prior police contact on arrest, which appeared to increase (Smith and Klein, 1984:475) or even double (Smith, 1987:778) the probability of arrest.

The 1980s produced new findings regarding the influence of complainant characteristics. Analysis of the PSS data indicated that police are slightly less likely to arrest suspects when the complainant is female yet more likely to arrest when the complainant is female and the incident involves violence (Smith and Klein, 1984:474). Other research focused on the complainant's race and class. Some studies indicated that police are not as likely to arrest when black or lower-status complainants are involved and that arrest occurs more often in encounters involving white victims, once race of suspect is held constant (Lafree, 1981:594; Smith et al., 1984:246). The implication is that police arrest behavior is affected by the race of the victim but not the race of the suspect. Finally, in sexual assault cases, allegations of "victim misconduct/victim violation of sex role norms" (e.g., victim had been hitchhiking, victim had been in a bar without a male escort, etc.) were found to have a negative effect on arrest in one study (Lafree, 1981:588), while another study found no relationship (Kerstetter, 1990:284).

Research on police-citizen interactions also produced new findings in the 1980s. Sykes and Brent (1983:217,221) reported that the largest single influence on incident outcome is the length of the officer-suspect interaction, with more severe outcomes (i.e., arrest) associated with longer interactions.

Organizational-Level Variables

The influence of various patrol strategies, changes in the division of labor, and changes in the nature of supervision on arrest remains unresolved (see Table 4). However, since operationalizations of organizational categories vary significantly, it is extremely difficult to compare variables examined in the 1980s to those reported by Sherman (1980:85-87). In general, research from the 1980s has indicated that patrol concentration has no effect

on property and violent crime arrest rates (Slovak, 1986:28). However, Mastrofski (1981:355) reported that smaller primary assignment areas were correlated with a higher propensity to arrest suspects in high-violence neighborhoods. Others have reported that increased personnel focused on a specific target (i.e., police crackdowns) produces significantly more arrests (Sherman, 1990:16). "Aggressive policing" also significantly increases robbery and burglary arrest rates (Sampson and Cohen, 1988:176). Past research examining the effects of changes in the division of labor on arrest produced mixed results (Sherman, 1980:85-86). More recent research has indicated that a change from five eight-hour shifts to four ten-hour shifts had no effect on arrest productivity (Moore and Morrow, 1987:108). When supervision strategy has been operationalized as the ratio of officers below the rank of sergeant to sergeants, the results have been mixed. Crank (1990:181) found that increasing this ratio had no effect in urban departments but did increase arrest rates in rural departments, while Slovak's (1986:29-30) analysis of urban departments showed that increases in this ratio were correlated with higher arrest rates for violent crimes but had no effect on property crimes.

Sherman (1980:86-87) did not report any research examining the influence of enforcement strategies on arrest, and research from the 1980s produced mixed results. Changes in rape investigation priorities had no influence on the percentage of cases resulting in arrest (Lafree, 1981:587). Similarly, a directive requiring officers to make domestic violence arrests when responding to domestic disturbances did not increase daily domestic violence arrests (Lawrenz et al., 1988:495). However, analysis of an enforcement strategy (ROP) implemented to target active recidivists in Washington, D.C. indicated that the new strategy decreased the overall arrest productivity of the officers involved but that the rate of serious arrests made by ROP officers increased significantly (Martin and Sherman, 1986:162,170).

Sherman (1980:87-88) indicated that the

effects of department type on arrest were inconclusive. Research from the 1980s was inconclusive as well. For example, police professionalism either had no effect on arrest (Smith and Klein, 1984:476), decreased the likelihood of arrest (Smith and Klein, 1983:84), or decreased the likelihood of arrest in urban departments but increased arrests in rural departments (Crank, 1990:181, 185).¹⁶ Similarly, research from the 1980s has not clarified the influence of bureaucratization.¹⁷ While some studies using PSS data indicated that bureaucratization had no statistically significant effect on arrests (Smith and Klein, 1984:475; Smith et al., 1984:243–44), another found that it increased the likelihood of arrest (Smith and Klein, 1983:84). Crank's (1990:181) analysis of Illinois data indicated that bureaucratization was positively associated with arrests in both urban and rural departments.

New interorganizational variables, such as an indicator of the legalistic police style and measures of department size, were examined in the 1980s.¹⁸ Results showed that as departments became more legalistic the likelihood of arrest increased dramatically (Smith and Klein, 1983:86; 1984:476). Unfortunately, the effect of department size remains unclear. Liska and Chamlin (1984:389) found that department size had no effect on arrest behavior, while Mastrofski et al. (1987:392) and Slovak (1986:29) found that larger departments were less likely to arrest.

Community-Level Variables

Arrest is the only area of police behavior that has generated a substantial number of findings on the influence of community-level variables. Community-level findings primarily have involved political, economic, and racial/cultural heterogeneity variables. Although there has been a lot of research on community-level variables, a number of issues remain unresolved.

Most findings on community-level economic variables show such variables to be significant predictors of the police arrest decision (Liska and Chamlin, 1984:389; Smith, 1984:27; Smith and Klein, 1984:475; Smith,

1986:331; 1987:778). One study indicated that neighborhood poverty level was positively associated with the probability of arrest when only the suspect was present but that it did not affect the probability of arrest significantly when both a suspect and complainant were present (Smith et al., 1984:244). Also, Slovak (1986:28) found that regional poverty increased the likelihood of arrest for property crimes but not for violent crimes. Finally, another study, which used different economic measures, reported that in rural areas increases in per capita income were associated with increases in arrest rates while percent unemployed had no significant influence. However, increases in per capita income and unemployment have been associated with decreases in arrest rates in urban areas (Crank, 1990:184).

Polity has been operationalized in a variety of ways, and it had produced mixed results when Sherman published his summary article (1980:89). Even though researchers in the 1980s used similar operationalizations and examined effects across a number of crimes, the results have remained mixed. In the 1980s the city-manager type of government was found to increase arrests for property crimes (Slovak, 1986:28), larceny and DWI arrests (Langworthy, 1985:92), and trespass, disorderly conduct, motor vehicle-related, and cannabis control arrests in rural police departments but only motor vehicle-related arrests in urban departments (Crank, 1990:184). Conversely, research indicated that cities with traditional forms of government had higher arrest rates for disorderly conduct and the same rate as city-manager governments for simple assault and drunkenness arrests (Langworthy, 1985:92).

One finding supports research cited by Sherman (1980:90) that percent nonwhite substantially affects arrest rates (Liska and Chamlin, 1984:389). Crank (1990), however, using numerous indicators of cultural heterogeneity¹⁹ to examine its effects on arrest behavior, obtained mixed results. With both environmental and organizational factors controlled, heterogeneity (measured as percent black in a community) was consistently associated with increases in the arrest

rate in rural departments but had no effect in urban departments (1990:184). When heterogeneity was measured as percent Hispanic, the only positive relationship was found for urban departments. Specifically, increases in percent Hispanic were associated with higher arrest rates for trespass offenses (1990:184). When it was operationalized as foreign language, heterogeneity either increased or had no effect on arrest rates in rural departments but decreased arrest rates for some crimes in urban departments (1990:184).

Finally, there have been contradictory results regarding the effect of neighborhood crime rates on police arrest behavior. Research analyzing the PSS data found that neighborhood crime rates and victimization rates had no effect on police arrest behavior (Smith, 1984:27; 1987:775). Conversely, Liska and Chamlin (1984:389) found that reported crimes substantially affected arrest rates.

FORCE

Although police officers seldom employ force in the performance of their duties (see, e.g., Bayley and Garafalo, 1989:6–7), a great deal of social science research has sought to explain and describe it. This may be attributable to the fact that any single incident of police use of force has the potential to alienate communities or, in the extreme, generate violence and large-scale public disorder.²⁰ While the types of force examined by researchers include both physical and deadly force, the primary emphasis has been on police use of deadly force. Overall, the quantitative methods used to study deadly force lack the level of methodological sophistication found in other areas. This, in part, may be explained by the fact that police rarely use deadly force. The fact that it is used infrequently makes it difficult to gather enough data to test the effects of one variable while holding others constant. Table 5 presents the results.²¹

Individual-Level Variables

Research in the 1980s confirmed earlier findings (Sherman, 1980:74) that officer height

and physical size had no effect on officers' use of deadly force (Hayden, 1981:107).²² In general, research from the 1980s indicated that individual officer characteristics were not significant predictors of police force behavior.

Descriptive statistics revealed that male officers were involved in deadly force incidents more often than females (Horvath, 1987:232, 234). Another study, which used data from New York City's (FDAR) assault and injury reports, indicated that female officers in male-female patrol teams were less likely to use deadly force than their male partners (Grennan, 1987:84). However, this research also found that female officers in patrol teams reacted similarly to the way male officers reacted during violent confrontations (1987:83) and that they actually may be more effective in calming a potentially violent situation.

The relationship between officer race and use of force remains unclear. Sherman cited research indicating that black officers were more likely to use unjustified force but that this relationship was spurious because of their overrepresentation in high-crime neighborhoods (Sherman, 1980:75). Research from the 1980s indicated that officer race had no relationship to the use of reasonable or excessive physical force (Friedrich, 1980:95)²³ or on-duty shootings (Geller and Karales, 1981a:1856; Fyfe, 1981b:375). When data indicated that blacks had higher rates of involvement in on-duty shootings, it was because they were disproportionately assigned to high-crime areas (Fyfe, 1981b:375). The same research indicated that off-duty black officers shoot at civilians more often than white officers (Geller and Karales, 1981a:1859; Fyfe, 1981b:378).²⁴

Research from the 1980s contributed a number of new findings on how individual characteristics affect force and deadly force. Research that examined officer age (Alpert, 1989:487), marital status (Hayden, 1981:107), length of service (Friedrich, 1980:95; Hayden, 1981:106; Holzworth and Pipping, 1985:192), and education (Hayden, 1981:106; Sherman and Blumberg, 1981:322) revealed that these variables exerted no influence on police decisions to use force or deadly force. Observational data gathered in New York City

TABLE 5
FORCE BEHAVIOR FINDINGS

Variables	Pre-1980		Post-1980			
	Relationship	Number of Findings	Relationship	Breakdown of relationships		Number of Findings
				Positive or Negative	No Relationship	
Individual-level (of officer)						
Gender	—	—	c	3	1	4
Race	c	2	c	3	2	5
Height	b	6	b	0	1	1
Age	—	—	b	0	1	1
Marital status	—	—	b	0	1	1
Education	a	1	b	0	3	3
Length of service	—	—	b	0	3	3
Attitudes	—	—	c	1	1	2
Other ^a	—	—	a	2	0	2
Total findings		9		9	13	22
Situational						
Police entry						
Pro/reactive	—	—	b	0	1	1
Response time	—	—	—	—	—	—
Number of officers	a	1	a	1	0	1
Other ^b	—	—	a	1	0	1
Suspect						
Gender	a	4	c	3	1	4
Race	c	5	c	9	5	14
Age	c	2	c	4	1	5
Class	a	1	b	0	1	1
Demeanor	a	2	a	6	0	6
Victim-offender relationship						
History	—	—	c	2	0	2
Complainant						
Gender	—	—	—	—	—	—
Race	—	—	—	—	—	—
Age	—	—	—	—	—	—
Class	—	—	—	—	—	—
Demeanor	—	—	—	—	—	—
Preference	—	—	—	—	—	—
Visibility						
Public/private	a	1	c	1	1	2
Number of spectators	—	—	a	2	0	2
Seriousness						
Felony/misdemeanor	—	—	c	4	4	8
Injury	—	—	—	—	—	—
Weapon	—	—	a	1	0	1
Legal						
Miranda	—	—	—	—	—	—
Evidence	—	—	—	—	—	—
Decriminalization	—	—	—	—	—	—
Total findings		16		34	14	48
Organizational-level						
Intraorganizational						
Patrol strategy	—	—	c	3	0	3
Enforcement strategy	a	1	—	—	—	—
Division of labor	—	—	a	2	0	2
Supervision	c	4	a	7	0	7
Interorganizational						
Department size	—	—	—	—	—	—
Professionalism	—	—	b	0	1	1
Bureaucratization	—	—	—	—	—	—
Professionalism and bureaucratization	—	—	—	—	—	—
Discretionary time	—	—	—	—	—	—
Total findings		5		12	1	13

TABLE 5 Continued
FORCE BEHAVIOR FINDINGS

Variables	Pre-1980		Post-1980			
	Relationship	Number of Findings	Breakdown of relationships		No Relationship	Number of Findings
			Relationship	Positive or Negative		
Community-level						
Polity	—	—	—	—	—	—
Statute change	—	—	b	0	1	1
Economy	a	2	—	—	—	—
Crime rate	—	—	c	5	2	7
Demographic						
Percent nonwhite	a	1	a	3	0	3
Stability	a	2	—	—	—	—
Percent over 65	—	—	—	—	—	—
Heterogeneity	—	—	a	2	0	2
Percent single parent	—	—	—	—	—	—
Transient population	—	—	a	1	0	1
Total findings		5		11	3	14

KEY a = relationship b = no relationship c = mixed findings d = possibly spurious relationship — = no research

^aThe influence of officers who are skilled in handling conflicts, as determined by their peers (Bayley and Garofalo, 1989:11).

^bWhether conflict existed when police arrived (Bayley and Garofalo, 1989:8).

indicated that officers designated as more skilled in dealing with overt conflicts actually were more confrontational and more likely to take verbal or physically forceful action (Bayley and Garofalo, 1989:11). Finally, research examining the influence of police attitudes has resulted in mixed findings. Friedrich's (1980:95) analysis of reasonable and excessive force indicated that job satisfaction had no influence on police use of force but racial attitudes had an effect. Specifically, the more prejudiced a white officer was the more force that officer employed against blacks.

Situational Variables

Perhaps the most fertile area of research regarding police force, as was found for the other areas of police behavior, is the influence of situational factors. Research prior to and during the 1980s has focused primarily on the influence of suspect characteristics. Research examining suspect demeanor and the number of police officers present has produced consistent results across the two eras of policing research. Studies of physical force and of deadly force have indicated that the police are more likely to use force when the suspect is antagonistic, has been drinking, or

makes obscene remarks (Sherman, 1980:81; Friedrich, 1980:95; Hayden, 1981:107; Smith, 1986:331; Bayley and Garofalo, 1989:9) and that the use of force increases as the number of police officers increases (Sherman, 1980:79; Friedrich, 1980:95). Early research using bivariate statistical analysis indicated that lower-class suspects were more likely to be subjected to excessive force (Sherman, 1980:83). More recent multivariate analysis of the same data set indicated that a suspect's class had no effect on police use of force when individual, situational, and organizational variables were controlled (Friedrich, 1980:95).

A number of issues remain unresolved regarding the effects of suspect demographic characteristics, incident seriousness, and the visibility of the situation. Sherman cited mixed findings regarding the influence of suspect race and age on use of force (Sherman, 1980:81–82). Research from the 1980s has not clarified these effects. A number of studies reported that a suspect's race had no effect on an officer's decision to use force (Friedrich, 1980:95) or shoot (Blumberg, 1981:158–65; Brown, 1984:135). Other studies have shown that blacks are overrepresented among police shooting victims but that they are also overrepresented in overall arrest rates, arrests for

violent crimes, and reported murders (Meyer, 1980:102-03; Fyfe, 1981a:176-77; Griswold and Massey, 1985:6; Horvath, 1987:236). Geller and Karales (1981a:1852) reported that suspect race had an effect in some deadly force situations but not others, and research in Memphis indicated that police "differentiate racially with their trigger fingers" (Fyfe, 1982:719-21; 1986:728-29). Other research has shown that the use of coercive authority is influenced by the racial composition of an area rather than by the race of an individual suspect and that police exercise more coercive authority toward blacks in black neighborhoods than toward blacks in white neighborhoods (Smith, 1986:333). Smith suggested that these findings refute the hypothesis that police act more coercively toward people who appear out of context.

Bivariate statistical analysis has indicated that police are most likely to use deadly force on suspects under the age of thirty (Sherman, 1980:82; Fyfe, 1981a:182; Holzworth and Pipping, 1985:192; Griswold and Massey, 1985:5; Horvath, 1987:233). However, multivariate analysis revealed no relationship between suspect age and police use of physical force (Friedrich, 1980:95). Some bivariate research has indicated that males predominantly are the targets in police shootings (Sherman, 1980:83; Griswold and Massey, 1985:5; Horvath, 1987:229). Multivariate analysis has indicated that police use less coercive authority against female offenders (Smith, 1986:331). However, other multivariate research has indicated that gender has no effect on police decisions to use reasonable (self-defense or amount needed to make an arrest) or excessive force (Friedrich, 1980:95).

With respect to the visibility of a police-suspect encounter early research indicated that excessive force occurred primarily in private locations (Sherman, 1980:85). Findings from the 1980s are mixed. Multivariate research indicated that the visibility of the situation had no effect (Friedrich, 1980:95), while Smith (1986:331) found force less likely in public places.

Some studies have indicated that use of deadly force increases with the seriousness of

the offense (Geller and Karales, 1981a:1833; Brown, 1984:135). Using multivariate analysis, Bayley and Garofalo (1989:9) found citizen use of a weapon to be one of the few statistically significant variables affecting police use of force. Other research has produced inconsistent results, finding that seriousness had an effect when the city examined had a "sound shooting policy" (Fyfe, 1982:715; 1988:90) but that it had no effect when the city did not have such a policy (Fyfe, 1982:716; 1988:89). Other studies have indicated that seriousness has no effect on police use of either physical (Friedrich, 1980:95) or deadly force (Griswold and Massey, 1985:8). It must be noted that the operationalization of offense seriousness is dramatically affected by the coding of the events that precipitate police use of force. For example, a nonserious incident such as a traffic stop could evolve into an assault on an officer that results in police use of force. Such an incident could be coded as nonserious if the initial stop were deemed the antecedent cause of behavior, or it could be coded as serious if the assault on the officer was coded as the cause of police behavior. This might explain the contradictory findings regarding the effects of offense seriousness on police use of force.

New findings on police use of force emerged in the 1980s. For example, using bivariate analysis, Friedrich (1980:92) found that whether entry into an encounter was proactive or reactive had no effect on the use of physical force. Other studies indicated that the presence of bystanders was negatively related to the perceived necessity of drawing a weapon, based upon hypothetical (Holzworth and Pipping, 1985:192) or actual use of force (Friedrich, 1980:95).

Organizational-Level Variables

In general, organizational factors do seem to be related to police use of force. However, research has concentrated largely on intra-organizational factors and neglected differences between police agencies. Research prior to 1980 indicated that a restrictive policy on police use of force, together with supervisory

review, reduced the number of shooting incidents (Sherman, 1980:86). Research from the 1980s supported this conclusion (Sherman, 1983:111; Fyfe, 1982:721; 1986:728; 1988:91). An issue that remains unresolved is the effect of two-person versus one-person patrol units on the use of force. Research has indicated that officers in two-person units are more likely to use reasonable force and less likely to use excessive force (Friedrich, 1980:92). However, civilians have been killed at a higher rate by police departments characterized by a small percentage of one-officer units (Lester, 1982:385).²⁵

Research on division of labor and professionalism produced new findings in the 1980s. This research indicated that officers assigned to special units, such as robbery, stakeout, or narcotics, are more likely to shoot citizens and are overrepresented as on-duty shooters (Geller and Karales, 1981a:1857–58; Waegel, 1984:133). Additionally, research has indicated that whether a department is traditional, professional, or transitional has an effect on police use of force (Friedrich, 1980:95).

Community-Level Variables

The racial composition of communities and measures of community "dangerousness" seem to influence police use of force. For example, earlier research (Sherman, 1980:90) and research from the 1980s (Lester, 1982:385)²⁶ have suggested that percent nonwhite is a strong predictor of police use of deadly force. Smith's analysis of the PSS data contributed new findings indicating that police use of coercive authority is more likely in racially heterogeneous neighborhoods but less likely in more transient communities (Smith, 1986:329, 331).

Some effects remain unclear. A number of studies in the 1980s found that an officer's perception of danger, as measured by the community crime rate, arrest rate, and homicide rate, increased the use of deadly force (Fyfe, 1980:108; 1981b:377; Geller and Karales, 1981a:1860; Lester, 1982:385; Waegel, 1984:133). However, another study, which

used time-series analysis, refuted the perceived dangerousness hypothesis and indicated that the incidence of criminal homicide and incidence of police use of deadly force were spuriously related (Langworthy, 1986:387). Finally, research examining a community statute change in Philadelphia found that the statute had little impact on the use of deadly force by police officers (Waegel, 1984:136).

CONCLUSION

Sherman (1980) concluded his review by emphasizing the need for police research to utilize more sophisticated quantitative methods. Research conducted during the 1980s certainly improved dramatically in that respect. By the end of that decade studies seldom were based solely on bivariate analysis, and the use of regression, probit, logit, or time series analysis had become commonplace. However, the advanced methodologies have led to an increased proportion of findings that remain unresolved (see Tables 2–5).

Of the four dependent variables considered in this review, service behavior has received the least amount of quantitative attention. This lack of scrutiny is problematic for two reasons. First, a number of variables were not examined at all over the past twenty-five years of quantitative policing research. For example, organizational variables such as department size, professionalism, and bureaucratization have been ignored in terms of service behavior. Second, the influence of a number of the variables that have been examined remains unresolved. For example, the influence of officer race and length of service produced mixed findings in studies cited by Sherman (1980:73, 74–75), yet no research examined these variables in the 1980s. Moreover, relative to the other categories of police behavior, service may be the area that affords individual officers the most discretion; therefore, individual officer characteristics might be expected to be salient predictors of service behavior.

TABLE 6
TOTAL NUMBER OF FINDINGS FOR EACH DEPENDENT VARIABLE BY EACH INDEPENDENT VARIABLE

Behavior	Individual-Level			Situational			Organizational-Level			Community-Level		
	Positive or Negative	No Relationship		Positive or Negative	No Relationship		Positive or Negative	No Relationship		Positive or Negative	No Relationship	
Service	0	5		15	2		7	0		5	2	
Detection	9	11		14	8		7	0		11	1	
Arrest	12	21		128	97		23	11		30	28	
Force	9	14		34	14		12	1		11	3	
Total	30	51		191	121		49	12		57	34	

During the 1980s research examining service behavior largely concentrated on situational characteristics. The visibility of the encounter appeared to influence service behavior, while the influence of a number of suspect characteristics (gender, demeanor, and history) have remained in question. New research has suggested that community-level variables, such as heterogeneity and neighborhood economic status, affect service behavior.

The research on detection activities has indicated that community-level variables and organizational characteristics of police agencies influence police behavior. The consistent relationship between community-level variables and police detection activities is disconcerting because it suggests possible bias in detection activities related to such factors as neighborhood stability and racial heterogeneity. Further research needs to be conducted utilizing additional data because these findings were derived from two studies that relied on the same data set (Smith, 1986; Worden, 1989). Conversely, the fairly consistent relationship between police organizational variables and detection activities is encouraging. The fact that officer training affects reporting behavior and quality of reports suggests that organizations can use such training to correct shortcomings or biases in detection activities or improve overall performance in this area.

Findings on the effects of individual characteristics and situational factors on detection behavior are almost evenly divided between those indicating a relationship and those not indicating a relationship. For example, the influence of officer gender and officer attitudes remains unresolved. The research examining officer attitudes suggests that some attitudes do affect police behavior while others exert no influence. The effects of situational characteristics such as suspect and complainant race remain unresolved. Smith (1986:337) found the complainant's race to have a conditional influence on police filing of reports related to neighborhood-level racial homogeneity in some models estimated. However, estimates from other models (Smith, 1986:329) and other research (Homant and

Kennedy, 1985:38; Stenross, 1984:399) indicated no relationship.

A considerable amount of research has examined the causes of police arrest behavior. Some causes are clear. The key situational factors that predict arrest are the demeanor of the suspect and the complainant's preference. Other situational factors, such as suspect age, race, and gender, have been emphasized in the research and have generally been found to have no effect. These findings suggest that police arrest decisions are based primarily on situation-specific reactions rather than preconceived suspect stereotypes. In general, organizational factors influence the arrest decision, and the influence of individual-level and community-level variables remains unresolved.

With respect to police use of force, most research has suggested that officer characteristics are seldom important. Although numerous studies have examined situational variables, a number of relationships remain in question. For example, the effects of suspect race, gender, and age and the seriousness of the situation remain unresolved. Suspect demeanor, however, is strongly associated with police use of force, as was found for the decision to arrest. Organizational characteristics of police departments have been found to influence police use of force. Law enforcement agencies have made significant strides in controlling inappropriate behavior through organizational change. However, a number of studies have found a relationship between community-level variables and police use of force. This suggests that police agencies need to identify and attempt to control bias in the use of force related to community-level demographic characteristics.

Finally, although the use of deadly force was studied extensively during the 1980s, we probably know less than it appears. The problem is that much of the analysis was primarily bivariate.²⁷ The results of bivariate quantitative analysis of police service, detection, arrest, and nondeadly force behavior prior to 1980 have seldom been replicated with newer multivariate techniques. The same may be true for bivariate deadly force findings.

FUTURE RESEARCH

This review, covering twenty-five years, has revealed a number of questions that need to be addressed in future research on the causes of police behavior. First, the bivariate relationships established prior to 1980 have been found to be much more complex than originally envisioned. In addition to conducting multivariate analysis of direct effects, researchers have estimated a number of interaction terms, have compared the effects across particular types of departments, and have utilized both micro and macro levels of analysis. For example, research employing interaction terms has indicated that community-level variables can interact with complainant's race to affect police detection activities. It is not difficult to imagine that the relationship could become more complex when more elaborate interaction terms are introduced. The need for additional research utilizing interaction terms is evident.

Second, research examining a specific category of police behavior (e.g., arrest or force) generally has failed to consider how the same independent factors exert influence across other categories of police behavior. For example, research examining how suspect race influences arrest has not considered the research examining the effects of suspect race on detection. This is unfortunate because a number of behaviors occur each time police interact with citizens. Indeed, a single police-citizen encounter could include all of the areas of police behavior discussed herein.

Third, organizational factors received the least amount of quantitative attention during the 1980s despite the fact that they were the most consistent predictors of police behavior (see Table 6). Because of the limited amount of findings, a number of questions remain. For example, can organizational strategies effectively mitigate or eliminate unwelcome individual, situational, or community influences on police behavior? Past research examining the effects of restrictive shooting policies on the use of deadly force would suggest that they can (Fyfe, 1982;1986;1988). Moreover, of the four categories of independent variables, organizational factors are those

over which police agencies have the most direct control. Future research must ascertain whether the influence of these variables remains after other possible explanations have been controlled statistically.

Fourth, the research examining organizational factors suggests significant variation among police agencies. Perhaps some of the differences between the findings from the 1980s and those reported by Sherman (1980) are due to the fact that different police agencies were examined. Police agencies influence and are influenced by their political and cultural environments. Each police department is unique, and referring to "the police" as a monolith is overly simplistic. Future research should examine policing at the departmental level. For this to happen, data sets that include a wide variety of police organizations must be generated.

Finally, although reports of research examining police behavior often contain some perfunctory acknowledgement of theory, explicit attempts to test theoretically derived propositions or hypotheses are uncommon, and theoretical explanations of quantitative findings are rarer yet. Clearly, theoretical development is lagging far behind the quantitative attempts to estimate the relationships between variables. The need for theoretical explanations of the findings generated through statistical analyses is evident.

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NOTES

1. In this review, a finding is considered clarified when research from the 1980s indicated a relationship (either positive or negative) between an independent variable and a type of police behavior where Sherman's

Appendix
INDEPENDENT VARIABLES EMPLOYED IN POLICE BEHAVIOR RESEARCH

<i>Individual-Level</i>	<i>Situational</i>	<i>Situational (cont.)</i>	<i>Organizational-Level</i>	<i>Community-Level</i>
Officer	Police Entry	Seriousness	Intraorganizational	—polity
—gender	—pro/reactive	—felony/misdemeanor	—patrol strategy	—statute change
—race	—response time	—injury/no injury	—enforcement	—economy
—height	—number of officers	—weapon/no weapon	—division of labor	—crime rate
—age	Suspect Characteristics	Legal	—supervision strategy	Demographic
—marital status	—gender	—Miranda	Interorganizational	—percent nonwhite
—education	—race	—evidence	—department size	—stability
—length of service	—class	—decriminalization	—professionalism	—percent over 65
—attitudes	—demeanor		—bureaucratization	—heterogeneity
	—victim-offender relationship		—professionalism and bureaucratization	—percent single parent
	—history		—discretionary time	—transient population
	Complainant Characteristics			
	—gender			
	—race			
	—age			
	—class			
	—demeanor			
	—preference			
	Visibility			
	—public/private			
	—number of spectators			

research indicated findings on the relationship were mixed.

2. The levels of analysis we discuss differ slightly from those of Sherman (see 1980:70–71). He had a fifth category of independent influences consisting of legal variables (i.e., seriousness), which we feel are best classified as situational characteristics.

3. From these numbers, it might appear that research examining the causes of police behavior has not grown substantially. However, Sherman's review summarized research over a 15-year period and included dissertations and unpublished papers, which we have excluded. He also included studies of citizen use of force against the police and citizen complaints against an officer. We have excluded these because they are outcomes rather than causes of police behavior.

4. The effects of each independent variable on a respective category of police behavior was counted as a finding. However, we only included those effects which were discussed in the written text of a particular study, as opposed to variables included in the model but not discussed in the text. Also, for studies that present both multivariate and bivariate findings for the same independent variable, we present only the multivariate findings. Thus, Table 1 actually underreports the total number of findings that have been produced regarding police behavior in the 1980s.

5. When examining a specific independent variable's influence on a specific dependent variable, we defined a relationship as *mixed* when there were one or more positive findings and one or more negative findings or when one or more findings suggested a positive or a negative relationship and at least one other finding indicated no relationship.

6. Worden (1989) examined officer attitudes regarding role orientations, legal restrictions, citizen respect and cooperation, legal institutions, and selective enforcement. For a complete description of these variables, see Worden (1989:687–90).

7. The size of a particular PAA is predicated by the population of the area patrolled.

8. Supervision strategy was operationalized in three different ways: first, as the ratio of supervisors to officers on the street; second, as the mean number of times a supervisor was present at encounters; and finally, as total supervision contact (Allen, 1982:104).

9. Sykes and Brent (1983) used a scale of the severity of police sanctions with arrest being the extreme end of the scale.

10. Type of department was operationalized as follows: departments with high bureaucratization and high professionalism are legalistic; departments with high professionalism and low bureaucracy are service; those with low professionalism and high bureaucratization are militaristic; and those with low professionalism and low bureaucratization are fraternal.

11. Smith and Klein (1983:88) examined the influence of job satisfaction, while Worden examined attitudes regarding role orientations, legal restrictions, citizen respect and cooperation, legal institutions, and selective enforcement. Meyers et al. examined legal restrictions, legal institution, and selective enforcement

attitudes. Stith examined how officers' approval of marital violence influenced their arrest decisions in domestic violence situations.

12. Berk and Loeske (1980–1981:340) hypothesized that the police interpret these situations as less severe because the woman is physically able to call the police and neighbors do not appear to be concerned (or disturbed) enough to call the police.

13. In the study by Krohn et al. (1983) the effects of gender were mixed and were dependent on the age of the suspect, the seriousness of the offense, and the time period analyzed.

14. Smith and Klein (1983:90) found a relationship only in service and fraternal departments.

15. It is possible that this effect is related to the probability that supervisors respond to the scene of more serious crimes.

16. Smith and Klein (1983) operationalized professionalism as the aggregate educational level of the department. Crank (1990) used two separate indicators of professionalism, police strength and concentration. Police strength was measured as increases in the ratio of officers to the population of the community, and concentration was measured as the ratio of administrative positions to the total sworn officers in a police agency. Finally, Smith and Klein (1984) measured professionalism as the sum of four standardized variables: average officer education, proportion of officers who completed one year of school since joining the department, mean number of years of education completed, and proportion of officers with a college degree.

17. A police department's level of bureaucratization has been measured by collapsing department size, number of ranks, and number of occupational titles into one variable (Smith and Klein, 1983; Smith and Klein, 1984; Smith et al., 1984) or measured by the amount of segmentation in a police department (Crank, 1990).

18. A combination of indicators of professionalism and bureaucratization has been used to form an interactive representation of a legalistic police style (Smith and Klein, 1983; 1984).

19. Crank (1990) operationalized cultural heterogeneity three different ways: percent black, percent Hispanic, and percent of the community that speaks a foreign language at home.

20. The importance of understanding and controlling excessive use of force by police has certainly been underscored by the recent nationwide violence and mayhem triggered by the acquittal in the criminal trial of the Los Angeles police officers involved in the beating of Rodney King.

21. It should be noted that we eliminated a number of the findings cited by Sherman under the categories of officer age and education. The reason, as stated earlier in this article, is that these findings had to do with assaults on officers or citizen-attitudes regarding the police. We think these should not be considered since they are better classified as outcomes of police behavior.

22. In the past, the lack of effect may have been due to the limited variability of physical characteristics. As

police height and size qualifications have been altered significantly, physical characteristics may have become more salient.

23. Friedrich's work was included in Sherman's review of research in 1980. Friedrich's work cited here is different in that the focus was in the area of force, whereas the findings cited by Sherman were primarily in the arrest and detection areas.

24. It has been suggested that the overrepresentation of minorities as off-duty shooters was due to the fact that they were more likely to reside in high-crime areas (Fyfe, 1981b:381).

25. This finding may indicate that in areas where police are more likely to use force they are also more likely to be paired up.

26. Caution should be exercised in regard to this finding because of the high degree of collinearity between percent nonwhite and the violent crime rate.

27. This may be largely due to the fact that police use deadly force so rarely that it is difficult to gather adequate data on this phenomenon.

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